SEQUENCE LISTING

<110> IIDA, Shigeru
SATOH, Mitsuo
INOUE, Miho
WAKITANI, Masako
UCHIDA, Kazuhisa
NIWA, Rinpei
SHITARA, Kenya

<120> Ganglioside GM2-specific antibody composition

<130> Q105982

<140> US 10/575,114
<141> 2006-04-10

<150> P2003-350168
<151> 2003-10-09

<150> P2004-129431
<151> 2004-04-26

<150> PCT/JP04/15317
<151> 2004-10-08

<160> 43

<170> PatentIn Ver. 2.1

<210> 1
<211> 1504
<212> DNA
<213> Cricetulus griseus

<220>
<221> CDS
<222> (1)..(1119)

<400> 1
```
atg gct cac gct ccc gct agc tgc ccg agc tcc agg aac tct ggg gac   48
Met Ala His Ala Pro Ala Ser Cys Pro Ser Ser Arg Asn Ser Gly Asp
  1               5                  10                  15

ggc gat aag ggc aag ccc agg aag gtg gcg ctc atc acg ggc atc acc   96
Gly Asp Lys Gly Lys Pro Arg Lys Val Ala Leu Ile Thr Gly Ile Thr
             20                  25                  30

ggc cag gat ggc tca tac ttg gca gaa ttc ctg ctg gag aaa gga tac   144
Gly Gln Asp Gly Ser Tyr Leu Ala Glu Phe Leu Leu Glu Lys Gly Tyr
         35                  40                  45

gag gtt cat gga att gta cgg cga tcc agt tca ttt aat aca ggt cga   192
Glu Val His Gly Ile Val Arg Arg Ser Ser Ser Phe Asn Thr Gly Arg
     50                  55                  60

att gaa cat tta tat aag aat cca cag gct cat att gaa gga aac atg   240
Ile Glu His Leu Tyr Lys Asn Pro Gln Ala His Ile Glu Gly Asn Met
 65                  70                  75                  80
```

```
aag ttg cac tat ggt gac ctc acc gac agc acc tgc cta gta aaa atc   288
Lys Leu His Tyr Gly Asp Leu Thr Asp Ser Thr Cys Leu Val Lys Ile
                 85                  90                  95

atc aat gaa gtc aaa cct aca gag atc tac aat ctt ggt gcc cag agc   336
Ile Asn Glu Val Lys Pro Thr Glu Ile Tyr Asn Leu Gly Ala Gln Ser
            100                 105                 110

cat gtc aag att tcc ttt gac tta gca gag tac act gca gat gtt gat   384
His Val Lys Ile Ser Phe Asp Leu Ala Glu Tyr Thr Ala Asp Val Asp
        115                 120                 125

gga gtt ggc acc ttg cgg ctt ctg gat gca att aag act tgt ggc ctt   432
Gly Val Gly Thr Leu Arg Leu Leu Asp Ala Ile Lys Thr Cys Gly Leu
    130                 135                 140

ata aat tct gtg aag ttc tac cag gcc tca act agt gaa ctg tat gga   480
Ile Asn Ser Val Lys Phe Tyr Gln Ala Ser Thr Ser Glu Leu Tyr Gly
145                 150                 155                 160

aaa gtg caa gaa ata ccc cag aaa gag acc acc cct ttc tat cca agg   528
Lys Val Gln Glu Ile Pro Gln Lys Glu Thr Thr Pro Phe Tyr Pro Arg
                165                 170                 175

tcg ccc tat gga gca gcc aaa ctt tat gcc tat tgg att gta gtg aac   576
Ser Pro Tyr Gly Ala Ala Lys Leu Tyr Ala Tyr Trp Ile Val Val Asn
            180                 185                 190

ttt cga gag gct tat aat ctc ttt gcg gtg aac ggc att ctc ttc aat   624
Phe Arg Glu Ala Tyr Asn Leu Phe Ala Val Asn Gly Ile Leu Phe Asn
        195                 200                 205

cat gag agt cct aga aga gga gct aat ttt gtt act cga aaa att agc   672
His Glu Ser Pro Arg Arg Gly Ala Asn Phe Val Thr Arg Lys Ile Ser
    210                 215                 220

cgg tca gta gct aag att tac ctt gga caa ctg gaa tgt ttc agt ttg   720
Arg Ser Val Ala Lys Ile Tyr Leu Gly Gln Leu Glu Cys Phe Ser Leu
225                 230                 235                 240

gga aat ctg gac gcc aaa cga gac tgg ggc cat gcc aag gac tat gtc   768
Gly Asn Leu Asp Ala Lys Arg Asp Trp Gly His Ala Lys Asp Tyr Val
                245                 250                 255

gag gct atg tgg ctg atg tta caa aat gat gaa cca gag gac ttt gtc   816
Glu Ala Met Trp Leu Met Leu Gln Asn Asp Glu Pro Glu Asp Phe Val
            260                 265                 270

ata gct act ggg gaa gtt cat agt gtc cgt gaa ttt gtt gag aaa tca   864
Ile Ala Thr Gly Glu Val His Ser Val Arg Glu Phe Val Glu Lys Ser
        275                 280                 285


ttc atg cac att gga aag acc att gtg tgg gaa gga aag aat gaa aat   912
Phe Met His Ile Gly Lys Thr Ile Val Trp Glu Gly Lys Asn Glu Asn
    290                 295                 300

gaa gtg ggc aga tgt aaa gag acc ggc aaa att cat gtg act gtg gat   960
Glu Val Gly Arg Cys Lys Glu Thr Gly Lys Ile His Val Thr Val Asp
305                 310                 315                 320
```

```
ctg aaa tac tac cga cca act gaa gtg gac ttc ctg cag gga gac tgc   1008
Leu Lys Tyr Tyr Arg Pro Thr Glu Val Asp Phe Leu Gln Gly Asp Cys
                325                 330                 335

tcc aag gcg cag cag aaa ctg aac tgg aag ccc cgc gtt gcc ttt gac   1056
Ser Lys Ala Gln Gln Lys Leu Asn Trp Lys Pro Arg Val Ala Phe Asp
            340                 345                 350

gag ctg gtg agg gag atg gtg caa gcc gat gtg gag ctc atg aga acc   1104
Glu Leu Val Arg Glu Met Val Gln Ala Asp Val Glu Leu Met Arg Thr
        355                 360                 365

aac ccc aac gcc tga gcacctctac aaaaaaattc gcgagacatg gactatggtg   1159
Asn Pro Asn Ala
    370

cagagccagc caaccagagt ccagccactc ctgagaccat cgaccataaa ccctcgactg 1219
cctgtgtcgt ccccacagct aagagctggg ccacaggttt gtgggcacca ggacggggac 1279
actccagagc taaggccact tcgcttttgt caaaggctcc tctcaatgat tttgggaaat 1339
caagaagttt aaaatcacat actcatttta cttgaaatta tgtcactaga caacttaaat 1399
ttttgagtct tgagattgtt tttctctttt cttattaaat gatctttcta tgacccagca 1459
aaaaaaaaaa aaaaaaggga tataaaaaaa aaaaaaaaaa aaaaa                 1504


<210> 2
<211> 372
<212> PRT
<213> Cricetulus griseus

<400> 2
Met Ala His Ala Pro Ala Ser Cys Pro Ser Ser Arg Asn Ser Gly Asp
  1               5                  10                  15

Gly Asp Lys Gly Lys Pro Arg Lys Val Ala Leu Ile Thr Gly Ile Thr
             20                  25                  30

Gly Gln Asp Gly Ser Tyr Leu Ala Glu Phe Leu Leu Glu Lys Gly Tyr
         35                  40                  45

Glu Val His Gly Ile Val Arg Arg Ser Ser Ser Phe Asn Thr Gly Arg
     50                  55                  60

Ile Glu His Leu Tyr Lys Asn Pro Gln Ala His Ile Glu Gly Asn Met
 65                  70                  75                  80

Lys Leu His Tyr Gly Asp Leu Thr Asp Ser Thr Cys Leu Val Lys Ile
                 85                  90                  95

Ile Asn Glu Val Lys Pro Thr Glu Ile Tyr Asn Leu Gly Ala Gln Ser
            100                 105                 110

His Val Lys Ile Ser Phe Asp Leu Ala Glu Tyr Thr Ala Asp Val Asp
        115                 120                 125

Gly Val Gly Thr Leu Arg Leu Leu Asp Ala Ile Lys Thr Cys Gly Leu
    130                 135                 140

Ile Asn Ser Val Lys Phe Tyr Gln Ala Ser Thr Ser Glu Leu Tyr Gly
145                 150                 155                 160
```

```
Lys Val Gln Glu Ile Pro Gln Lys Glu Thr Thr Pro Phe Tyr Pro Arg
                165                 170                 175

Ser Pro Tyr Gly Ala Ala Lys Leu Tyr Ala Tyr Trp Ile Val Val Asn
            180                 185                 190

Phe Arg Glu Ala Tyr Asn Leu Phe Ala Val Asn Gly Ile Leu Phe Asn
        195                 200                 205

His Glu Ser Pro Arg Arg Gly Ala Asn Phe Val Thr Arg Lys Ile Ser
    210                 215                 220

Arg Ser Val Ala Lys Ile Tyr Leu Gly Gln Leu Glu Cys Phe Ser Leu
225                 230                 235                 240

Gly Asn Leu Asp Ala Lys Arg Asp Trp Gly His Ala Lys Asp Tyr Val
                245                 250                 255

Glu Ala Met Trp Leu Met Leu Gln Asn Asp Glu Pro Glu Asp Phe Val
            260                 265                 270

Ile Ala Thr Gly Glu Val His Ser Val Arg Glu Phe Val Glu Lys Ser
        275                 280                 285

Phe Met His Ile Gly Lys Thr Ile Val Trp Glu Gly Lys Asn Glu Asn
    290                 295                 300

Glu Val Gly Arg Cys Lys Glu Thr Gly Lys Ile His Val Thr Val Asp
305                 310                 315                 320

Leu Lys Tyr Tyr Arg Pro Thr Glu Val Asp Phe Leu Gln Gly Asp Cys
                325                 330                 335

Ser Lys Ala Gln Gln Lys Leu Asn Trp Lys Pro Arg Val Ala Phe Asp
            340                 345                 350

Glu Leu Val Arg Glu Met Val Gln Ala Asp Val Glu Leu Met Arg Thr
        355                 360                 365

Asn Pro Asn Ala
    370
```

<210> 3
<211> 1316
<212> DNA
<213> Cricetulus griseus

<400> 3
gccccgcccc ctccacctgg accgagagta gctggagaat tgtgcaccgg aagtagctct 60

tggactggtg gaaccctgcg caggtgcagc aacaatgggt gagccccagg gatccaggag 120

gatcctagtg acaggggggct ctggactggt gggcagagct atccagaagg tggtcgcaga 180

tggcgctggc ttacccggag aggaatgggt gtttgtctcc tccaaagatg cagatctgac 240

ggatgcagca caaacccaag ccctgttcca gaaggtacag cccacccatg tcatccatct 300

tgctgcaatg gtaggaggcc ttttccggaa tatcaaatac aacttggatt tctggaggaa 360

gaatgtgcac atcaatgaca acgtcctgca ctcagctttc gaggtgggca ctcgcaaggt 420

ggtctcctgc ctgtccacct gtatcttccc tgacaagacc acctatccta ttgatgaaac 480

aatgatccac aatggtccac cccacagcag caattttggg tactcgtatg ccaagaggat 540

gattgacgtg cagaacaggg cctacttcca gcagcatggc tgcaccttca ctgctgtcat 600

ccctaccaat gtctttggac ctcatgacaa cttcaacatt gaagatggcc atgtgctgcc 660

tggcctcatc cataaggtgc atctggccaa gagtaatggt tcagccttga ctgtttgggg 720

tacagggaaa ccacggaggc agttcatcta ctcactggac ctagcccggc tcttcatctg 780

ggtcctgcgg gagtacaatg aagttgagcc catcatcctc tcagtgggcg aggaagatga 840

agtctccatt aaggaggcag ctgaggctgt agtggaggcc atggacttct gtggggaagt 900

cacttttgat tcaacaaagt cagatgggca gtataagaag acagccagca atggcaagct 960

tcgggcctac ttgcctgatt tccgtttcac acccttcaag caggctgtga aggagacctg 1020

tgcctggttc accgacaact atgagcaggc ccggaagtga agcatgggac aagcgggtgc 1080

tcagctggca atgcccagtc agtaggctgc agtctcatca tttgcttgtc aagaactgag 1140

gacagtatcc agcaacctga gccacatgct ggtctctctg ccaggggggct tcatgcagcc 1200

atccagtagg gcccatgttt gtccatcctc gggggaaggc cagaccaaca ccttgtttgt 1260

ctgcttctgc cccaacctca gtgcatccat gctggtcctg ctgtcccttg tctaga 1316

<210> 4
<211> 321
<212> PRT
<213> Cricetulus griseus

<400> 4
Met Gly Glu Pro Gln Gly Ser Arg Arg Ile Leu Val Thr Gly Gly Ser
 1   5   10   15

Gly Leu Val Gly Arg Ala Ile Gln Lys Val Val Ala Asp Gly Ala Gly
            20   25   30

Leu Pro Gly Glu Glu Trp Val Phe Val Ser Ser Lys Asp Ala Asp Leu
        35   40   45

Thr Asp Ala Ala Gln Thr Gln Ala Leu Phe Gln Lys Val Gln Pro Thr
    50   55   60

His Val Ile His Leu Ala Ala Met Val Gly Gly Leu Phe Arg Asn Ile
65   70   75   80

Lys Tyr Asn Leu Asp Phe Trp Arg Lys Asn Val His Ile Asn Asp Asn
                85   90   95

Val Leu His Ser Ala Phe Glu Val Gly Thr Arg Lys Val Val Ser Cys
                                    5

```
            100                 105                 110

Leu Ser Thr Cys Ile Phe Pro Asp Lys Thr Thr Tyr Pro Ile Asp Glu
        115                 120                 125

Thr Met Ile His Asn Gly Pro Pro His Ser Ser Asn Phe Gly Tyr Ser
    130                 135                 140

Tyr Ala Lys Arg Met Ile Asp Val Gln Asn Arg Ala Tyr Phe Gln Gln
145                 150                 155                 160

His Gly Cys Thr Phe Thr Ala Val Ile Pro Thr Asn Val Phe Gly Pro
                165                 170                 175

His Asp Asn Phe Asn Ile Glu Asp Gly His Val Leu Pro Gly Leu Ile
            180                 185                 190

His Lys Val His Leu Ala Lys Ser Asn Gly Ser Ala Leu Thr Val Trp
        195                 200                 205

Gly Thr Gly Lys Pro Arg Arg Gln Phe Ile Tyr Ser Leu Asp Leu Ala
    210                 215                 220

Arg Leu Phe Ile Trp Val Leu Arg Glu Tyr Asn Glu Val Glu Pro Ile
225                 230                 235                 240

Ile Leu Ser Val Gly Glu Glu Asp Glu Val Ser Ile Lys Glu Ala Ala
                245                 250                 255

Glu Ala Val Val Glu Ala Met Asp Phe Cys Gly Glu Val Thr Phe Asp
            260                 265                 270

Ser Thr Lys Ser Asp Gly Gln Tyr Lys Lys Thr Ala Ser Asn Gly Lys
        275                 280                 285

Leu Arg Ala Tyr Leu Pro Asp Phe Arg Phe Thr Pro Phe Lys Gln Ala
    290                 295                 300


Val Lys Glu Thr Cys Ala Trp Phe Thr Asp Asn Tyr Glu Gln Ala Arg
305                 310                 315                 320

Lys


<210> 5
<211> 2008
<212> DNA
<213> Cricetulus griseus

<400> 5
aacagaaact tattttcctg tgtggctaac tagaaccaga gtacaatgtt tccaattctt 60

tgagctccga gaagacagaa gggagttgaa actctgaaaa tgcgggcatg gactggttcc 120

tggcgttgga ttatgctcat tctttttgcc tgggggacct tattgtttta tataggtggt 180

catttggttc gagataatga ccaccctgac cattctagca gagaactctc caagattctt 240
```

gcaaagctgg agcgcttaaa acaacaaaat gaagacttga ggagaatggc tgagtctctc 300

cgaataccag aaggccctat tgatcagggg acagctacag gaagagtccg tgttttagaa 360

gaacagcttg ttaaggccaa agaacagatt gaaaattaca agaaacaagc taggaatgat 420

ctgggaaagg atcatgaaat cttaaggagg aggattgaaa atggagctaa agagctctgg 480

ttttttctac aaagtgaatt gaagaaatta aagaaattag aaggaaacga actccaaaga 540

catgcagatg aaattctttt ggatttagga catcatgaaa ggtctatcat gacagatcta 600

tactacctca gtcaaacaga tggagcaggt gagtggcggg aaaaagaagc caaagatctg 660

acagagctgg tccagcggag aataacatat ctgcagaatc ccaaggactg cagcaaagcc 720

agaaagctgg tatgtaatat caacaaaggc tgtggctatg gatgtcaact ccatcatgtg 780

gtttactgct tcatgattgc ttatggcacc cagcgaacac tcatcttgga atctcagaat 840

tggcgctatg ctactggagg atgggagact gtgtttagac ctgtaagtga gacatgcaca 900

gacaggtctg gcctctccac tggacactgg tcaggtgaag tgaaggacaa aaatgttcaa 960

gtggtcgagc tccccattgt agacagcctc catcctcgtc ctccttactt acccttggct 1020

gtaccagaag accttgcaga tcgactcctg agagtccatg gtgatcctgc agtgtggtgg 1080

gtatcccagt ttgtcaaata cttgatccgt ccacaacctt ggctggaaag ggaaatagaa 1140

gaaaccacca agaagcttgg cttcaaacat ccagttattg gagtccatgt cagacgcact 1200

gacaaagtgg gaacagaagc agccttccat cccattgagg aatacatggt acacgttgaa 1260

gaacattttc agcttctcga acgcagaatg aaagtggata aaaaaagagt gtatctggcc 1320

actgatgacc cttctttgtt aaaggaggca aagacaaagt actccaatta tgaatttatt 1380

agtgataact ctatttcttg gtcagctgga ctacacaacc gatacacaga aaattcactt 1440

cggggcgtga tcctggatat acactttctc tcccaggctg acttccttgt gtgtactttt 1500

tcatcccagg tctgtagggt tgcttatgaa atcatgcaaa cactgcatcc tgatgcctct 1560

gcaaacttcc attctttaga tgacatctac tattttggag gccaaaatgc ccacaaccag 1620

attgcagttt atcctcacca acctcgaact aaagaggaaa tccccatgga acctggagat 1680

atcattggtg tggctggaaa ccattggaat ggttactcta aaggtgtcaa cagaaaacta 1740

ggaaaaacag gcctgtaccc ttcctacaaa gtccgagaga agatagaaac agtcaaatac 1800

cctacatatc ctgaagctga aaaatagaga tggagtgtaa gagattaaca acagaattta 1860

gttcagacca tctcagccaa gcagaagacc cagactaaca tatggttcat tgacagacat 1920

gctccgcacc aagagcaagt gggaaccctc agatgctgca ctggtggaac gcctctttgt 1980

gaagggctgc tgtgccctca agcccatg 2008

<210> 6
<211> 1728
<212> DNA
<213> Mus musculus

<400> 6
atgcgggcat ggactggttc ctggcgttgg attatgctca ttctttttgc ctgggggacc 60

ttgttatttt atataggtgg tcatttggtt cgagataatg accaccctga tcactccagc 120

agagaactct ccaagattct tgcaaagctt gaacgcttaa aacagcaaaa tgaagacttg 180

aggcgaatgg ctgagtctct ccgaatacca gaaggcccca ttgaccaggg gacagctaca 240

ggaagagtcc gtgttttaga agaacagctt gttaaggcca aagaacagat tgaaaattac 300

aagaaacaag ctagaaatgg tctggggaag gatcatgaaa tcttaagaag gaggattgaa 360

aatggagcta aagagctctg gttttttcta caaagcgaac tgaagaaatt aaagcattta 420

gaaggaaatg aactccaaag acatgcagat gaaattcttt tggatttagg acaccatgaa 480

aggtctatca tgacagatct atactacctc agtcaaacag atggagcagg ggattggcgt 540

gaaaaagagg ccaaagatct gacagagctg gtccagcgga gaataacata tctccagaat 600

cctaaggact gcagcaaagc caggaagctg gtgtgtaaca tcaataaagg ctgtggctat 660

ggttgtcaac tccatcacgt ggtctactgt ttcatgattg cttatggcac ccagcgaaca 720

ctcatcttgg aatctcagaa ttggcgctat gctactggtg gatgggagac tgtgtttaga 780

cctgtaagtg agacatgtac agacagatct ggcctctcca ctggacactg gtcaggtgaa 840

gtaaatgaca aaaacattca agtggtcgag ctccccattg tagacagcct ccatcctcgg 900

cctccttact taccactggc tgttccagaa gaccttgcag accgactcct aagagtccat 960

ggtgaccctg cagtgtggtg ggtgtcccag tttgtcaaat acttgattcg tccacaacct 1020

tggctggaaa aggaaataga agaagccacc aagaagcttg gcttcaaaca tccagttatt 1080

ggagtccatg tcagacgcac agacaaagtg ggaacagaag cagccttcca ccccatcgag 1140

gagtacatgg tacacgttga agaacatttt cagcttctcg cacgcagaat gcaagtggat 1200

aaaaaaagag tatatctggc tactgatgat cctactttgt taaaggaggc aaagacaaag 1260

tactccaatt atgaatttat tagtgataac tctatttctt ggtcagctgg actacacaat 1320

cggtacacag aaaattcact tcggggtgtg atcctggata tacactttct ctcacaggct 1380

gactttctag tgtgtacttt ttcatcccag gtctgtcggg ttgcttatga aatcatgcaa 1440

accctgcatc ctgatgcctc tgcgaacttc cattctttgg atgacatcta ctattttgga 1500

ggccaaaatg cccacaatca gattgctgtt tatcctcaca aacctcgaac tgaagaggaa 1560

attccaatgg aacctggaga tatcattggt gtggctggaa accattggga tggttattct 1620

aaaggtatca acagaaaact tggaaaaaca ggcttatatc cctcctacaa agtccgagag 1680

aagatagaaa cagtcaagta tcccacatat cctgaagctg aaaaatag 1728

<210> 7
<211> 575
<212> PRT
<213> Cricetulus griseus

<400> 7

```
Met Arg Ala Trp Thr Gly Ser Trp Arg Trp Ile Met Leu Ile Leu Phe
  1               5                  10                  15

Ala Trp Gly Thr Leu Leu Phe Tyr Ile Gly Gly His Leu Val Arg Asp
             20                  25                  30

Asn Asp His Pro Asp His Ser Ser Arg Glu Leu Ser Lys Ile Leu Ala
         35                  40                  45

Lys Leu Glu Arg Leu Lys Gln Gln Asn Glu Asp Leu Arg Arg Met Ala
     50                  55                  60

Glu Ser Leu Arg Ile Pro Glu Gly Pro Ile Asp Gln Gly Thr Ala Thr
 65                  70                  75                  80

Gly Arg Val Arg Val Leu Glu Glu Gln Leu Val Lys Ala Lys Glu Gln
                 85                  90                  95

Ile Glu Asn Tyr Lys Lys Gln Ala Arg Asn Asp Leu Gly Lys Asp His
            100                 105                 110

Glu Ile Leu Arg Arg Arg Ile Glu Asn Gly Ala Lys Glu Leu Trp Phe
        115                 120                 125

Phe Leu Gln Ser Glu Leu Lys Lys Leu Lys Lys Leu Glu Gly Asn Glu
    130                 135                 140

Leu Gln Arg His Ala Asp Glu Ile Leu Leu Asp Leu Gly His His Glu
145                 150                 155                 160

Arg Ser Ile Met Thr Asp Leu Tyr Tyr Leu Ser Gln Thr Asp Gly Ala
                165                 170                 175

Gly Glu Trp Arg Glu Lys Glu Ala Lys Asp Leu Thr Glu Leu Val Gln
            180                 185                 190

Arg Arg Ile Thr Tyr Leu Gln Asn Pro Lys Asp Cys Ser Lys Ala Arg
        195                 200                 205

Lys Leu Val Cys Asn Ile Asn Lys Gly Cys Gly Tyr Gly Cys Gln Leu
    210                 215                 220

His His Val Val Tyr Cys Phe Met Ile Ala Tyr Gly Thr Gln Arg Thr
225                 230                 235                 240

Leu Ile Leu Glu Ser Gln Asn Trp Arg Tyr Ala Thr Gly Gly Trp Glu
                245                 250                 255
```

```
Thr Val Phe Arg Pro Val Ser Glu Thr Cys Thr Asp Arg Ser Gly Leu
            260                 265                 270

Ser Thr Gly His Trp Ser Gly Glu Val Lys Asp Lys Asn Val Gln Val
        275                 280                 285

Val Glu Leu Pro Ile Val Asp Ser Leu His Pro Arg Pro Pro Tyr Leu
    290                 295                 300

Pro Leu Ala Val Pro Glu Asp Leu Ala Asp Arg Leu Leu Arg Val His
305                 310                 315                 320

Gly Asp Pro Ala Val Trp Trp Val Ser Gln Phe Val Lys Tyr Leu Ile
                325                 330                 335

Arg Pro Gln Pro Trp Leu Glu Arg Glu Ile Glu Glu Thr Thr Lys Lys
            340                 345                 350

Leu Gly Phe Lys His Pro Val Ile Gly Val His Val Arg Arg Thr Asp
        355                 360                 365

Lys Val Gly Thr Glu Ala Ala Phe His Pro Ile Glu Glu Tyr Met Val
    370                 375                 380

His Val Glu Glu His Phe Gln Leu Leu Glu Arg Arg Met Lys Val Asp
385                 390                 395                 400

Lys Lys Arg Val Tyr Leu Ala Thr Asp Asp Pro Ser Leu Leu Lys Glu
                405                 410                 415

Ala Lys Thr Lys Tyr Ser Asn Tyr Glu Phe Ile Ser Asp Asn Ser Ile
            420                 425                 430

Ser Trp Ser Ala Gly Leu His Asn Arg Tyr Thr Glu Asn Ser Leu Arg
        435                 440                 445

Gly Val Ile Leu Asp Ile His Phe Leu Ser Gln Ala Asp Phe Leu Val
    450                 455                 460

Cys Thr Phe Ser Ser Gln Val Cys Arg Val Ala Tyr Glu Ile Met Gln
465                 470                 475                 480

Thr Leu His Pro Asp Ala Ser Ala Asn Phe His Ser Leu Asp Asp Ile
                485                 490                 495

Tyr Tyr Phe Gly Gly Gln Asn Ala His Asn Gln Ile Ala Val Tyr Pro
            500                 505                 510

His Gln Pro Arg Thr Lys Glu Glu Ile Pro Met Glu Pro Gly Asp Ile
        515                 520                 525

Ile Gly Val Ala Gly Asn His Trp Asn Gly Tyr Ser Lys Gly Val Asn
    530                 535                 540

Arg Lys Leu Gly Lys Thr Gly Leu Tyr Pro Ser Tyr Lys Val Arg Glu
545                 550                 555                 560

Lys Ile Glu Thr Val Lys Tyr Pro Thr Tyr Pro Glu Ala Glu Lys
                565                 570                 575
```

<210> 8
<211> 575
<212> PRT
<213> Mus musculus

<400> 8
Met Arg Ala Trp Thr Gly Ser Trp Arg Trp Ile Met Leu Ile Leu Phe
  1   5   10   15

Ala Trp Gly Thr Leu Leu Phe Tyr Ile Gly Gly His Leu Val Arg Asp
             20   25   30

Asn Asp His Pro Asp His Ser Ser Arg Glu Leu Ser Lys Ile Leu Ala
         35   40   45

Lys Leu Glu Arg Leu Lys Gln Gln Asn Glu Asp Leu Arg Arg Met Ala
     50   55   60

Glu Ser Leu Arg Ile Pro Glu Gly Pro Ile Asp Gln Gly Thr Ala Thr
 65   70   75   80

Gly Arg Val Arg Val Leu Glu Glu Gln Leu Val Lys Ala Lys Glu Gln
                 85   90   95

Ile Glu Asn Tyr Lys Lys Gln Ala Arg Asn Gly Leu Gly Lys Asp His
            100   105   110

Glu Ile Leu Arg Arg Arg Ile Glu Asn Gly Ala Lys Glu Leu Trp Phe
        115   120   125

Phe Leu Gln Ser Glu Leu Lys Lys Leu Lys His Leu Glu Gly Asn Glu
    130   135   140

Leu Gln Arg His Ala Asp Glu Ile Leu Leu Asp Leu Gly His His Glu
145   150   155   160

Arg Ser Ile Met Thr Asp Leu Tyr Tyr Leu Ser Gln Thr Asp Gly Ala
                165   170   175

Gly Asp Trp Arg Glu Lys Glu Ala Lys Asp Leu Thr Glu Leu Val Gln
            180   185   190

Arg Arg Ile Thr Tyr Leu Gln Asn Pro Lys Asp Cys Ser Lys Ala Arg
        195   200   205

Lys Leu Val Cys Asn Ile Asn Lys Gly Cys Gly Tyr Gly Cys Gln Leu
    210   215   220

His His Val Val Tyr Cys Phe Met Ile Ala Tyr Gly Thr Gln Arg Thr
225   230   235   240

Leu Ile Leu Glu Ser Gln Asn Trp Arg Tyr Ala Thr Gly Gly Trp Glu
                245   250   255

Thr Val Phe Arg Pro Val Ser Glu Thr Cys Thr Asp Arg Ser Gly Leu
            260   265   270

Ser Thr Gly His Trp Ser Gly Glu Val Asn Asp Lys Asn Ile Gln Val

```
        275                 280                 285

Val Glu Leu Pro Ile Val Asp Ser Leu His Pro Arg Pro Pro Tyr Leu
    290                 295                 300

Pro Leu Ala Val Pro Glu Asp Leu Ala Asp Arg Leu Leu Arg Val His
305                 310                 315                 320

Gly Asp Pro Ala Val Trp Trp Val Ser Gln Phe Val Lys Tyr Leu Ile
                325                 330                 335

Arg Pro Gln Pro Trp Leu Glu Lys Glu Ile Glu Glu Ala Thr Lys Lys
            340                 345                 350

Leu Gly Phe Lys His Pro Val Ile Gly Val His Val Arg Arg Thr Asp
        355                 360                 365

Lys Val Gly Thr Glu Ala Ala Phe His Pro Ile Glu Glu Tyr Met Val
    370                 375                 380

His Val Glu Glu His Phe Gln Leu Leu Ala Arg Arg Met Gln Val Asp
385                 390                 395                 400

Lys Lys Arg Val Tyr Leu Ala Thr Asp Asp Pro Thr Leu Leu Lys Glu
                405                 410                 415

Ala Lys Thr Lys Tyr Ser Asn Tyr Glu Phe Ile Ser Asp Asn Ser Ile
            420                 425                 430

Ser Trp Ser Ala Gly Leu His Asn Arg Tyr Thr Glu Asn Ser Leu Arg
        435                 440                 445

Gly Val Ile Leu Asp Ile His Phe Leu Ser Gln Ala Asp Phe Leu Val
    450                 455                 460

Cys Thr Phe Ser Ser Gln Val Cys Arg Val Ala Tyr Glu Ile Met Gln
465                 470                 475                 480

Thr Leu His Pro Asp Ala Ser Ala Asn Phe His Ser Leu Asp Asp Ile
                485                 490                 495

Tyr Tyr Phe Gly Gly Gln Asn Ala His Asn Gln Ile Ala Val Tyr Pro
            500                 505                 510

His Lys Pro Arg Thr Glu Glu Glu Ile Pro Met Glu Pro Gly Asp Ile
        515                 520                 525

Ile Gly Val Ala Gly Asn His Trp Asp Gly Tyr Ser Lys Gly Ile Asn
    530                 535                 540

Arg Lys Leu Gly Lys Thr Gly Leu Tyr Pro Ser Tyr Lys Val Arg Glu
545                 550                 555                 560

Lys Ile Glu Thr Val Lys Tyr Pro Thr Tyr Pro Glu Ala Glu Lys
                565                 570                 575
```

<210> 9
<211> 383
<212> DNA

<213> Cricetulus griseus

<400> 9
gttaactggg gctcttttaa accctgaatt tttctaaatc cccacctcca agagtttggt 60

ttaaactgat ttttttaatg aataccttt gaagaataga gcattgtctc atcatgcaaa 120

gcttctcagg gattcagcta gcatgttgaa gaaacataag ggtgttaaat tgtttgtcac 180

aagtgctgaa taaatattga cgtagtcttc agctattcta tactggaagt agatgatatt 240

ctcattggaa attctgttag gaagtaaccc ttcttgtctt cttacctgca tagaatccca 300

ggatataaaa cttgtgcttg tcgcccttgc cattgtctct cactggtggc ctttattgca 360

tctcatatct gccttctctt tcc 383

<210> 10
<211> 564
<212> DNA
<213> Cricetulus griseus

<400> 10
taagaattcc tgtgcccagc tgtatgtgag gctctctgca ggtgtaggga tgtttctgct 60

ttctttctgc acatgcttca cagctgaagt cctttgggtg tgagattgac attcagatag 120

actaaagtga ctggacttgt tgggaaacat actgtatgca ttattgccgt tgcctccagg 180

tgaaattaac acctcattca ccaatccctg ttcatccaaa ctttctaccc acatcacttt 240

aaatagaaat tagacccaat atgactcctt ttttcctaag ctgtttatag agattgtgct 300

ggagcagtga gcttttgtgt ttgtttgttt gttttgtaat tttccccatg aaaatttctc 360

taaactcaaa cctaagaggg aaaaaaaaaa aacagactta tatgtgccac acttgtaaaa 420

aaaaatcatg aaagatgtat atgatatttt taaacagttt gaatattaag atcacaattt 480

ctattttaaa aacaatcttg ttttacatat caatcaccca attcccttgc cttcccatcc 540

tcccattccc cccactgatc cccc 564

<210> 11
<211> 120
<212> DNA
<213> Cricetulus griseus

<400> 11
atgaatgttc attctttggg tatatgccca agagtagaat tgctaaatat tgaggtagac 60

tgattcccat tttcttgagg agtcgccata ttgatttcca aagtgactgt acaagttaac 120

<210> 12
<211> 274
<212> DNA

<213> Cricetulus griseus

<400> 12
aggcactagg taaatatttt tgaagaaaga atgagtatct cctatttcag aaaaactttt 60

attgacttaa atttaggata tcagaattag aaaacagtaa aaatttatag gagagttttt 120

aatgaatgtt attttaaggt tccatacaaa tagtaattaa aacttacaca aactatttgt 180

agtaatgatt cagtctggta taccctgatg agcattatac acttttaaat tctttttgta 240

aatttttta ttagttcaaa ttaggaacaa gctt 274

<210> 13
<211> 9196
<212> DNA
<213> Cricetulus griseus

<400> 13
tctagaccag gctggtctcg aactcacaga gaaccacctg cctctgccac ctgagtgctg 60

ggattaaagg tgtgcaccac caccgcccgg cgtaaaatca tatttttgaa tattgtgata 120

atttacatta taattgtaag taaaaatttt cagcctattt tgttatacat ttttgcgtaa 180

attattcttt tttgaaagtt ttgttgtcca taatagtcta gggaaacata aagttataat 240

ttttgtctat gtatttgcat atatatctat ttaatctcct aatgtccagg aaataaatag 300

ggtatgtaat agcttcaaca tgtggtatga tagaattttt cagtgctata taagttgtta 360

cagcaaagtg ttattaattc atatgtccat atttcaattt tttatgaatt attaaattga 420

atccttaagc tgccagaact agaattttat tttaatcagg aagccccaaa tctgttcatt 480

ctttctatat atgtggaaag gtaggcctca ctaactgatt cttcacctgt tttagaacat 540

ggtccaagaa tggagttatg taaggggaat tacaagtgtg agaaaactcc tagaaaacaa 600

gatgagtctt gtgaccttag tttctttaaa aacacaaaat tcttggaatg tgttttcatg 660

ttcctcccag gtggatagga gtgagtttat ttcagattat ttattacaac tggctgttgt 720

tacttgtttc tatgtcttta tagaaaaaca tatttttttt gccacatgca gcttgtcctt 780

atgattttat acttgtgtga ctcttaactc tcagagtata aattgtctga tgctatgaat 840

aaagttggct attgtatgag acttcagccc acttcaatta ttggcttcat tctctcagat 900

cccaccacct ccagagtggt aaacaacttg aaccattaaa cagactttag tctttatttg 960

aatgatagat ggggatatca gatttatagg cacagggttt tgagaaaggg agaaggtaaa 1020

cagtagagtt taacaacaac aaaaagtata ctttgtaaac gtaaaactat ttattaaagt 1080

agtagacaag acattaaata ttccttggga ttagtgcttt ttgaattttg ctttcaaata 1140

atagtcagtg agtatacccc tcccccattc tatattttag cagaaatcag aataaatggt 1200

gtttctggta cattcttttg tagagaattt attttctttg ggtttttgtg catttaaagt 1260

caataaaaat taaggttcag taatagaaaa aaaactctga tttttggaat ccccttttctt 1320

cagcttttct atttaatctc ttaatgataa tttaatttgt ggccatgtgg tcaaagtata 1380

tagccttgta tatgtaaatg ttttaaccaa cctgccttta cagtaactat ataattttat 1440

tctataatat atgacttttc ttccatagct ttagagttgc ccagtcactt taagttacat 1500

tttcatatat gttctttgtg ggaggagata attttatttc taagagaatc ctaagcatac 1560

tgattgagaa atggcaaaca aaacacataa ttaaagctga taaagaacga acatttggag 1620

tttaaaatac atagccaccc taagggttta actgttgtta gccttctttt ggaattttta 1680

ttagttcata tagaaaaatg gattttatcg tgacatttcc atatatgtat ataatatatt 1740

tacatcatat ccacctgtaa ttattagtgt ttttaaatat atttgaaaaa ataatggtct 1800

ggtttgatcc atttgaacct tttgatgttt ggtgtggttg ccaattggtt gatggttatg 1860

ataacctttg cttctctaag gttcaagtca gtttgagaat atgtcctcta aaaatgacag 1920

gttgcaagtt aagtagtgag atgacagcga gatggagtga tgagaatttg tagaaatgaa 1980

ttcacttata ctgagaactt gttttgcttt tagataatga acatattagc ctgaagtaca 2040

tagccgaatt gattaattat tcaaagatat aatcttttaa tccctataaa agaggtatta 2100

cacaacaatt caagaaagat agaattagac ttccagtatt ggagtgaacc atttgttatc 2160

aggtagaacc ctaacgtgtg tggttgactt aaagtgttta ctttttacct gatactgggt 2220

agctaattgt ctttcagcct cctggccaaa gataccatga aagtcaactt acgttgtatt 2280

ctatatctca aacaactcag ggtgtttctt actctttcca cagcatgtag agcccaggaa 2340

gcacaggaca agaaagctgc ctccttgtat caccaggaag atctttttgt aagagtcatc 2400

acagtatacc agagagacta attttgtctg aagcatcatg tgttgaaaca acagaaactt 2460

attttcctgt gtggctaact agaaccagag tacaatgttt ccaattcttt gagctccgag 2520

aagacagaag ggagttgaaa ctctgaaaat gcgggcatgg actggttcct ggcgttggat 2580

tatgctcatt ctttttgcct gggggacctt attgttttat ataggtggtc atttggttcg 2640

agataatgac caccctgacc attctagcag agaactctcc aagattcttg caaagctgga 2700

gcgcttaaaa caacaaaatg aagacttgag gagaatggct gagtctctcc ggtaggtttg 2760

aaatactcaa ggatttgatg aaatactgtg cttgaccttt aggtataggg tctcagtctg 2820

ctgttgaaaa atataatttc tacaaaccgt ctttgtaaaa ttttaagtat tgtagcagac 2880

tttttaaaag tcagtgatac atctatatag tcaatatagg tttacatagt tgcaatctta 2940

ttttgcatat gaatcagtat atagaagcag tggcatttat atgcttatgt tgcatttaca 3000

attatgttta gacgaacaca aactttatgt gatttggatt agtgctcatt aaatttttt 3060

attctatgga ctacaacaga gacataaatt ttgaaaggct tagttactct taaattctta 3120

tgatgaaaag caaaaattca ttgttaaata gaacagtgca tccggaatgt gggtaattat 3180

tgccatattt ctagtctact aaaaattgtg gcataactgt tcaaagtcat cagttgtttg 3240

gaaagccaaa gtctgattta aatggaaaac ataaacaatg atatctattt ctagatacct 3300

ttaacttgca gttactgagt ttacaagttg tctgacaact ttggattctc ttacttcata 3360

tctaagaatg atcatgtgta cagtgcttac tgtcacttta aaaaactgca gggctagaca 3420

tgcagatatg aagactttga cattagatgt ggtaattggc actaccagca agtggtatta 3480

agatacagct gaatatatta ctttttgagg aacataattc atgaatggaa agtggagcat 3540

tagagaggat gccttctggc tctcccacac cactgtttgc atccattgca tttcacactg 3600

cttttagaac tcagatgttt catatggtat attgtgtaac tcaccatcag ttttatcttt 3660

aaatgtctat ggatgataat gttgtatgtt aacactttta caaaaacaaa tgaagccata 3720

tcctcggtgt gagttgtgat ggtggtaatt gtcacaatag gattattcag caaggaacta 3780

agtcagggac aagaagtggg cgatactttg ttggattaaa tcattttact ggaagttcat 3840

cagggagggt tatgaaagtt gtggtctttg aactgaaatt atatgtgatt cattattctt 3900

gatttaggcc ttgctaatag taactatcat ttattgggaa tttgtcatat gtgccaattt 3960

gtcatgggcc agacagcgtg ttttactgaa tttctagata tctttatgag attctagtac 4020

tgttttcagc cattttacag atgaagaatc ttaaaaaatg ttaaataatt tagtttgccc 4080

aagattatac gttaacaaat ggtagaacct tctttgaatt ctggcagtat ggctacacag 4140

tccgaactct tatcttccta agctgaaaac agaaaaagca atgacccaga aaattttatt 4200

taaaagtctc aggagagact tcccatcctg agaagatctc ttttcccttt tataatttag 4260

gctcctgaat aatcactgaa ttttctccat gttccatcta tagtactgtt atttctgttt 4320

tccttttttc ttaccacaaa gtatcttgtt tttgctgtat gaaagaaaat gtgttattgt 4380

aatgtgaaat tctctgtccc tgcagggtcc cacatccgcc tcaatcccaa ataaacacac 4440

agaggctgta ttaattatga aactgttggt cagttggcta gggcttctta ttggctagct 4500

ctgtcttaat tattaaacca taactactat tgtaagtatt tccatgtggt cttatcttac 4560

caaggaaagg gtccagggac ctcttactcc tctggcgtgt tggcagtgaa gaggagagag 4620

cgatttccta tttgtctctg cttattttct gattctgctc agctatgtca cttcctgcct 4680

ggccaatcag ccaatcagtg ttttattcat tagccaataa aagaaacatt tacacagaag 4740

gacttccccc atcatgttat ttgtatgagt tcttcagaaa atcatagtat cttttaatac 4800

taatttttat aaaaaattaa ttgtattgaa aattatgtgt atatgtgtct gtgtgtcgat 4860

ttgtgctcat aagtagcatg gagtgcagaa gagggaatca gatctttttt taagggacaa 4920

agagtttatt cagattacat tttaaggtga taatgtatga ttgcaaggtt atcaacatgg 4980

cagaaatgtg aagaagctgg tcacattaca tccagagtca agagtagaga gcaatgaatt 5040

gatgcatgca ttcctgtgct cagctcactt ttcctggagc tgagctgatt gtaagccatc 5100

tgatgtcttt gctgggaact aactcaaagg caagttcaaa acctgttctt aagtataagc 5160

catctctcca gtccctcata tggtctctta agacactttc tttatattct tgtacataga 5220

aattgaattc ctaacaactg cattcaaatt acaaaatagt ttttaaaagc tgatataata 5280

aatgtaaata caatctagaa cattttttata aataagcata ttaactcagt aaaaataaat 5340

gcatggttat tttccttcat tagggaagta tgtctcccca ggctgttctc tagattctac 5400

tagtaatgct gtttgtacac catccacagg ggttttattt taaagctaag acatgaatga 5460

tggacatgct tgttagcatt tagacttttt tccttactat aattgagcta gtatttttgt 5520

gctcagtttg atatctgtta attcagataa atgtaatagt aggtaatttc tttgtgataa 5580

aggcatataa attgaagttg gaaaacaaaa gcctgaaatg acagttttta agattcagaa 5640

caataatttt caaaagcagt tacccaactt tccaaataca atctgcagtt ttcttgatat 5700

gtgataaatt tagacaaaga aatagcacat tttaaaatag ctatttactc ttgatttttt 5760

tttcaaattt aggctagttc actagttgtg tgtaaggtta tggctgcaaa catctttgac 5820

tcttggttag ggaatccagg atgatttacg tgtttggcca aaatcttgtt ccattctggg 5880

tttcttctct atctaggtag ctagcacaag ttaaaggtgt ggtagtattg gaaggctctc 5940

aggtatatat ttctatattc tgtatttttt tcctctgtca tatatttgct ttctgtttta 6000

ttgatttcta ctgttagttt gatacttact ttcttacact ttctttggga tttattttgc 6060

tgttctaaga tttcttagca agttcatatc actgatttta acagttgctt cttttgtaat 6120

atagactgaa tgccccttat ttgaaatgct tgggatcaga aactcagatt tgaacttttc 6180

ttttttaata tttccatcaa gtttaccagc tgaatgtcct gatccaagaa tatgaaatct 6240

gaaatgcttt gaaatctgaa acttttagag tgataaagct tccctttaaa ttaatttgtg 6300

ttctatattt tttgacaatg tcaacctttc attgttatcc aatgagtgaa catattttca 6360

atttttttgt ttgatctgtt atattttgat ctgaccatat ttataaaatt ttatttaatt 6420

tgaatgttgt gctgttactt atctttatta ttatttttgc ttattttcta gccaaatgaa 6480

attatattct gtattatttt agtttgaatt ttactttgtg gcttagtaac tgccttttgt 6540

tggtgaatgc ttaagaaaaa cgtgtggtct actgatattg gttctaatct tatatagcat 6600

gttgtttgtt aggtagttga ttatgctggt cagattgtct tgagtttatg caaatgtaaa 6660

atatttagat gcttgttttg ttgtctaaga acaaagtatg cttgctgtct cctatcggtt 6720

ctggtttttc cattcatctc ttcaagctgt tttgtgtgtt gaatactaac tccgtactat 6780

cttgttttct gtgaattaac ccctttttcaa aggtttcttt tctttttttt tttaagggac 6840

aacaagttta ttcagattac attttaagct gataatgtat gattgcaagg ttatcaacat 6900

ggcagaaatg tgaagaagct aggcacatta catccacatg gagtcaagag cagagagcag 6960

tgaattaatg catgcattcc tgtggtcagc tcacttttcc tattcttaga tagtctagga 7020

tcataaacct ggggaatagt gctaccacaa tgggcatatc cacttacttc agttcatgca 7080

atcaaccaag gcacatccac aggaaaaact gatttagaca acctctcatt gagactcttc 7140

ccagatgatt agactgtgtc aagttgacaa ttaaaactat cacacctgaa gccatcacta 7200

gtaaatataa tgaaaatgtt gattatcacc ataattcatc tgtatccctt tgttattgta 7260

gattttgtga agttcctatt caagtccctg ttccttcctt aaaaacctgt tttttagtta 7320

aataggtttt ttagtgttcc tgtctgtaaa tacttttttа aagttagata ttattttcaa 7380

gtatgttctc ccagtctttg gcttgtattt tcatcccttc aatacatata tttttgtaat 7440

ttatttttтt tatttaaatt agaaacaaag ctgcttttac atgtcagtct cagttccctc 7500

tccctcccct cctcccctgc tccccaccta agccccaatt ccaactcctt tcttctcccc 7560

aggaagggtg aggccctcca tgggggaaat cttcaatgtc tgtcatatca tttggagcag 7620

ggcctagacc ctccccagtg tgtctaggct gagagagtat ccctctatgt ggagagggct 7680

cccaaagttc atttgtgtac taggggtaaa tactgatcca ctatcagtgg ccccatagat 7740

tgtccggacc tccaaactga cttcctcctt cagggagtct ggaacagttc tatgctggtt 7800

tcccagatat cagtctgggg tccatgagca acccccttgtt caggtcagtt gtttctgtag 7860

gtttccccag cccggtcttg acccctttgc tcatcacttc tccctctctg caactggatt 7920

ccagagttca gctcagtgtt tagctgtggg tgtctgcatc tgcttccatc agctactgga 7980

tgagggctct aggatggcat ataaggtagt catcagtctc attatcagag aagggctttt 8040

aaggtagcct cttgattatt gcttagattg ttagttgggg tcaaccttgt aggtctctgg 8100

acagtgacag aattctcttt aaacctataa tggctccctc tgtggtggta tccctttтct 8160

tgctctcatc cgttcctccc ctgactagat cttcctgctc cctcatgtcc tcctctcccc 8220

tccccttctc cccttctctt tcttctaact ccctctcccc tccacccacg atccccatta 8280

gcttatgaga tcttgtcctt attttagcaa aacctttttg gctataaaat taattaattt 8340

aatatgctta tatcaggttt attttggcta gtatttgtat gtgtttggtt agtgttttta 8400

accttaattg acatgtatcc ttatatttag acacagattt aaatatttga agtttttttt 8460

ttttttttttt ttaaagattt atttatttttt tatgtcttct gcctgcatgc cagaagaggg 8520

caccagatct cattcaaggt ggttgtgagc caccatgtgg ttgctgggaa ttgaactcag 8580

gacctctgga agaacagtca gtgctcttaa ccgctgagcc atctctccag cccctgaagt 8640

gtttctttta aagaggatag cagtgcatca tttttccctt tgaccaatga ctcctacctt 8700

actgaattgt tttagccatt tatatgtaat gctgttacca ggtttacatt ttcttttatc 8760

ttgctaaatt tcttccctgt ttgtctcatc tcttattttt gtctgttgga ttatataggc 8820

ttttattttt ctgtttttac agtaagttat atcaaattaa aattatttta tggaatgggt 8880

gtgttgacta catgtatgtc tgtgcaccat gtgctgacct ggtcttggcc agaagaaggt 8940

gtcatattct ctgaaactgg tattgtggat gttacgaact gccatagggt gctaggaatc 9000

aaaccccagc tcctctggaa aagcagccac tgctctgagc cactgagtcc tctcttcaag 9060

caggtgatgc caacttttaa tggttaccag tggataagag tgcttgtatc tctagcaccc 9120

atgaaaattt atgcattgct atatgggctt gtcacttcag cattgtgtga cagagacagg 9180

aggatcccaa gagctc 9196

<210> 14
<211> 5
<212> PRT
<213> Mus musculus

<400> 14
Asn Tyr Asn Met Asp
1 5

<210> 15
<211> 17
<212> PRT
<213> Mus musculus

<400> 15
Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe Lys
1 5 10 15

Ser

<210> 16
<211> 11
<212> PRT
<213> Mus musculus

<400> 16
Thr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr
1 5 10

<210> 17
<211> 10
<212> PRT
<213> Mus musculus

<400> 17
Ser Ala Ser Ser Ser Val Ser Tyr Met His
  1   5   10

<210> 18
<211> 7
<212> PRT
<213> Mus musculus

<400> 18
Ser Thr Ser Asn Leu Ala Ser

  1   5

<210> 19
<211> 9
<212> PRT
<213> Mus musculus

<400> 19
Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
  1   5

<210> 20
<211> 120
<212> PRT
<213> Mus musculus

<400> 20
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
  1   5   10   15

Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
             20   25   30

Asn Met Asp Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
         35   40   45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
     50   55   60

Lys Ser Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
 65   70   75   80

Met Glu Leu His Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                 85   90   95

Ala Thr Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
            100   105   110

Gly Thr Leu Val Thr Val Ser Ala

115 120

<210> 21
<211> 107
<212> PRT
<213> Mus musculus

<400> 21
Gln Ile Val Leu Thr Gln Ser Pro Ala Ile Met Ser Ala Ser Pro Gly
1 5 10 15

Glu Lys Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

His Trp Phe Gln Gln Lys Pro Gly Thr Ser Pro Lys Leu Trp Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Met Glu Ala Glu
65 70 75 80

Asp Ala Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
85 90 95

Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg
100 105

<210> 22
<211> 125
<212> PRT
<213> Artificial sequence

<220>
<223> Amino Acid Sequence of Antibody Heavy Chain Variable Region

<400> 22
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30

Asn Met Asp Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
50 55 60

Lys Ser Lys Val Thr Ile Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
65 70 75 80

Met Glu Leu His Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95

Ala Thr Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
100 105 110

```
Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115                 120                 125


<210> 23
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Heavy Chain Variable Region

<400> 23
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
  1               5                  10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
             20                  25                  30

Asn Met Asp Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
         35                  40                  45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
     50                  55                  60

Lys Ser Arg Val Thr Ile Thr Ala Asp Thr Ser Thr Ser Thr Ala Tyr
 65                  70                  75                  80

Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Arg Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
            100                 105                 110

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115                 120                 125


<210> 24
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Light Chain Variable Region

<400> 24
Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
  1               5                  10                  15

Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
             20                  25                  30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
         35                  40                  45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
     50                  55                  60
```

```
Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu
 65                  70                  75                  80

Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
                85                  90                  95

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr
            100                 105


<210> 25
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Light Chain Variable Region

<400> 25
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
  1               5                  10                  15

Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
             20                  25                  30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile Tyr
         35                  40                  45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
     50                  55                  60

Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu
 65                  70                  75                  80

Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
                85                  90                  95

Phe Gly Gln Gly Thr Lys Val Glu Ile Lys Arg Thr
            100                 105


<210> 26
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Heavy Chain Variable Region

<400> 26
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
  1               5                  10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
             20                  25                  30

Asn Met Asp Trp Val Lys Gln Ser Pro Gly Gln Gly Leu Glu Trp Met
         35                  40                  45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
```

```
     50                  55                  60

Lys Ser Lys Val Thr Ile Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
 65                  70                  75                  80

Met Glu Leu His Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Thr Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
            100                 105                 110

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115                 120                 125


<210> 27
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Heavy Chain Variable Region

<400> 27
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
  1               5                  10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
             20                  25                  30

Asn Met Asp Trp Val Lys Gln Ser Pro Gly Lys Ser Leu Glu Trp Met
         35                  40                  45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
     50                  55                  60

Lys Ser Lys Val Thr Ile Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
 65                  70                  75                  80

Met Glu Leu His Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95

Ala Thr Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
            100                 105                 110

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115                 120                 125


<210> 28
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Heavy Chain Variable Region

<400> 28
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
  1               5                  10                  15
```

```
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
             20                  25                  30

Asn Met Asp Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
         35                  40                  45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
     50                  55                  60

Lys Ser Lys Ala Thr Leu Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
 65                  70                  75                  80

Met Glu Leu His Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Thr Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
            100                 105                 110

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115                 120                 125


<210> 29
<211> 125
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Heavy Chain Variable Region

<400> 29
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
  1               5                  10                  15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
             20                  25                  30

Asn Met Asp Trp Val Lys Gln Ser Pro Gly Lys Ser Leu Glu Trp Met
         35                  40                  45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
     50                  55                  60

Lys Ser Lys Ala Thr Leu Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
 65                  70                  75                  80

Met Glu Leu His Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                 85                  90                  95

Ala Thr Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
            100                 105                 110

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115                 120                 125


<210> 30
<211> 125
<212> PRT
```

<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Heavy Chain Variable Region

<400> 30
Glu Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala
  1   5   10   15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
             20   25   30

Asn Met Asp Trp Val Lys Gln Ser Pro Gly Gln Gly Leu Glu Trp Met
         35   40   45

Gly Tyr Ile Tyr Pro Asn Asn Gly Gly Thr Gly Tyr Asn Gln Lys Phe
     50   55   60

Lys Ser Lys Ala Thr Leu Thr Val Asp Thr Ser Thr Ser Thr Ala Tyr
 65   70   75   80

Met Glu Leu His Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                 85   90   95

Ala Thr Tyr Gly His Tyr Tyr Gly Tyr Met Phe Ala Tyr Trp Gly Gln
            100   105   110

Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly
        115   120   125

<210> 31
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Light Chain Variable Region

<400> 31
Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Pro Gly
  1   5   10   15

Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
             20   25   30

His Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp Ile Tyr
         35   40   45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ala Arg Phe Ser Gly Ser
     50   55   60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Leu Gln Pro Glu
 65   70   75   80

Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
                 85   90   95

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr
            100   105

<210> 32
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Light Chain Variable Region

<400> 32
Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Pro Gly
  1   5   10   15

Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
             20   25   30

His Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp Ile Tyr
         35   40   45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
     50   55   60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Leu Gln Pro Glu
 65   70   75   80

Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
                 85   90   95

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr
            100   105

<210> 33
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Light Chain Variable Region

<400> 33
Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Pro Gly
  1   5   10   15

Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
             20   25   30

His Trp Phe Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp Ile Tyr
         35   40   45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
     50   55   60

Gly Ser Gly Thr Ser Tyr Ser Phe Thr Ile Ser Ser Leu Gln Pro Glu
 65   70   75   80

Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
                 85   90   95

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr

100 105

<210> 34
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Light Chain Variable Region

<400> 34
Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Pro Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

His Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Trp Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Arg Leu Gln Pro Glu
65 70 75 80

Asp Ile Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
85 90 95

Phe Gly Gly Gly Thr Lys Val Glu Ile Lys Arg Thr
100 105

<210> 35
<211> 108
<212> PRT
<213> Artificial Sequence

<220>
<223> Amino Acid Sequence of Antibody Light Chain Variable Region

<400> 35
Asp Ile Gln Leu Thr Gln Ser Pro Ser Ser Met Ser Ala Ser Pro Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Ser Ala Ser Ser Ser Val Ser Tyr Met
20 25 30

His Trp Phe Gln Gln Lys Pro Gly Lys Ser Pro Lys Leu Trp Ile Tyr
35 40 45

Ser Thr Ser Asn Leu Ala Ser Gly Val Pro Ser Arg Phe Ser Gly Ser
50 55 60

Gly Ser Gly Thr Ser Tyr Ser Leu Thr Ile Ser Ser Met Gln Pro Glu
65 70 75 80

Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Arg Ser Ser Tyr Pro Tyr Thr
85 90 95

Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr
100 105

<210> 36
<211> 28
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 36
gagacttcag cccacttcaa ttattggc 28

<210> 37
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 37
cttgtgtgac tcttaactct cagag 25

<210> 38
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 38
gaggccactt gtgtagcgcc aagtg 25

<210> 39
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 39
ccctcgagat aacttcgtat agc 23

<210> 40
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 40
ggtaggcctc actaactg 18

<210> 41
<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 41
catagaaaca agtaacaaca gccag 25

<210> 42
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 42
gtgagtccat ggctgtcact g 21

<210> 43
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic DNA

<400> 43
cctgacttgg ctattctcag 20